

CLAIMS

1. An occupant protection activation device comprising:
a first and a second in-vehicle acceleration sensors that are disposed within a vehicle interior and electronically detect acceleration;

a third front-end acceleration sensor, disposed at the center of the vehicle's front-end, for electronically detecting acceleration;

a collision determining means for making a collision determination by using at least one of the output signals of the first in-vehicle acceleration sensor and the front-end acceleration sensor;

a first safety determining means for making a safety determination by using the output signal of the first in-vehicle acceleration sensor;

a second safety determining means for making a safety determination by using at least one of the output signals of the second in-vehicle acceleration sensor and the front-end acceleration sensor;

a signal processing means including said collision determining means and said second safety determining means; and

an actuating means for actuating the activating means of the occupant protection apparatus by the AND of the output signal of said first safety determining means and the output signal of said signal processing means.

2. An occupant protection activation device according to Claim 1, wherein the second in-vehicle acceleration sensor includes a mechanical acceleration sensor.

3. An occupant protection activation device according to Claim 1, wherein the actuating means includes:

an AND operation means for obtaining the AND of the output signal of the first safety determining means and the output signal of the signal processing means;

an integrated circuit into which a high-side transistor switch and a low-side transistor switch are integrated, which turn on and off a drive current to be inputted to the activating means, according to the output signal of the AND operation means; and

a semiconductor switch for turning on and off a power current flowing from a power circuit to said integrated circuit.

4. An occupant protection activation device according to Claim 3, wherein the actuating means includes the AND operation means for receiving the output signal of the first safety determining means and the output signal of the collision determining means provided within the signal processing means, and actuates the semiconductor switch based on the output signal of the second safety determining means provided within the signal processing means.

5. An occupant protection activation device according to

Claim 3, wherein the actuating means includes the AND operation means receiving the output signal of the first safety determining means and the output signal of the collision determining means provided within the signal processing means, and the actuating means actuates the semiconductor switch by the AND of the output signal of the second safety determining means provided within the signal processing means and the output signal of the collision determining means.

6. An occupant protection activation device according to Claim 3, wherein the actuating means includes the AND operation means for receiving the output signal of the second safety determining means provided within the signal processing means and the output signal of the collision determining means, and actuates the semiconductor switch by the output signal of the first safety determining means.

7. An occupant protection activation device comprising:
a first and a second in-vehicle acceleration sensors, disposed within a vehicle interior, for electronically detecting acceleration;

a third and a fourth front-end acceleration sensors, disposed on the left and the right of the vehicle's front-end, respectively, for electronically detecting acceleration;

a collision determining means for making a collision determination by using at least one of the output signals of said first in-vehicle acceleration sensor, said third, and said

fourth front-end acceleration sensors;

a first safety determining means for making a safety determination by using the output signal of said first in-vehicle acceleration sensor;

a second safety determining means for making a safety determination by using at least one of the output signals of said second in-vehicle acceleration sensor, said third, and said fourth front-end acceleration sensors;

a signal processing means including said collision determining means and said second safety determining means; and

an actuating means for actuating the activating means of the occupant protection apparatus by the AND of the output signal of said first safety determining means and the output signal of said signal processing means.

8. An occupant protection activation device according to Claim 7, wherein the second in-vehicle acceleration sensor includes a mechanical acceleration sensor.

9. An occupant protection activation device according to Claim 7, wherein the actuating means includes:

an AND operation means for obtaining the AND of the output signal of the first safety determining means and the output signal of said signal processing means;

an integrated circuit into which a high-side transistor switch and a low-side transistor switch are integrated, which turn on and off a drive current to be outputted to the activating

means according to the output signal of the AND operation means;
and

a semiconductor switch for turning on and off a power current flowing from a power circuit to the integrated circuit.

10. An occupant protection activation device according to Claim 9, wherein the actuating means includes the AND operation means for receiving the output signal of the first safety determining means and the output signal of the collision determining means provided within the signal processing means, and actuates the semiconductor switch based on the output signal of the second safety determining means provided within the signal processing means.

11. An occupant protection activation device according to Claim 9, wherein the actuating means includes the AND operation means receiving the output signal of the first safety determining means and the output signal of the collision determining means provided within the signal processing means, and the actuating means actuates the semiconductor switch by the AND of the output signal of the second safety determining means provided within the signal processing means and the output signal of the collision determining means.

12. An occupant protection activation device according to Claim 9, wherein the actuating means includes the AND operation means receiving the output signal of the second safety

determining means provided within the signal processing means and the output signal of the collision determining means, and actuates the semiconductor switch by the output signal of the first safety determining means.